In the Claims:

1- 28. (Canceled).

29. (New) A membrane separation process for the enrichment of at least one gas component in a gas flow using a membrane separation device which is a part of a membrane separation unit and has at least one membrane for separation of the gas flow into a retentate, which is discharged on a retentate side of the at least one membrane, and a permeate, which is discharged on a permeate side of the at least one membrane, comprising the steps of:

before passing the gas flow through the membrane separation unit, compressing the gas flow to an inlet pressure higher than ambient pressure and lowering the pressure on the permeate side of the at least one membrane as compared with the inlet pressure, and

delivering the gas flow to the membrane separation unit under an absolute pressure that is lower than 3 bar, and discharging the permeate from the membrane separation unit at an absolute pressure of 0.4 to1 bar.

30. (New) The membrane separation process according to claim 29, wherein the absolute pressure at which the gas flow is delivered to the membrane separation unit is 1.5 bar.

31. (New) The membrane separation process according to claim 29, wherein the retentate is discharged at an absolute pressure of 1 to 3 bar

32. (New) The membrane separation process according to claim 29, wherein the retentate is discharged at an absolute pressure of approximately 1 bar.

33. (New) The membrane separation process according to claim 29, wherein the pressure of at least one of the inlet pressure of the gas flow and an outlet pressure of the retentate is changed by an amount corresponding to the size of a pressure drop occurring at the retentate side of the membrane separation unit.

34. (New) The membrane separation process according to claim 29, wherein at least one of a volume of the permeate stream and a concentration of the component of the gas flow that is enriched is controlled by lowering the pressure level on the permeate side.

35. (New) The membrane separation process according to claim 29, wherein the process is performed in a single-stage.

36. (New) The membrane separation process according to claim 29, wherein a pressure difference between the gas flow and the retentate does not exceed 1 bar and

37. (New) The membrane separation process according to claim 29, wherein a pressure difference between the gas flow and the retentate is controlled depending on the concentration of the component enriched in the permeate.

38. The membrane separation process according to claim 29, wherein the gas component to be enriched is passed through the membrane into the permeate.

39. (New) The membrane separation process according to claim 29, wherein the permeate which is enriched is oxygen, the oxygen being enriched to a concentration of 22 to 45 Vol.%.

40. (New) The membrane separation process according to claim 29, wherein the membrane separation device used comprises at least one of a pocket module, a plate module and a hollow fiber module.

41. (New) The membrane separation process according to claim 29, wherein the gas flow is divided in at least two streams and split through at least one of a plurality of different parallel membrane separation devices and membrane separation units installed in a membrane separation system.

42. (New) The membrane separation process according to claim 29, wherein, before entering the membrane separation unit, the gas flow is cleaned of at least one of particles, oils and fat.

43. (New) The membrane separation process according to claim 29, wherein, before entering the membrane separation unit, the temperature of the gas flow is changed by about 10° C to 25° C.

44. (New) The membrane separation process according to claim 29, wherein, before entering the membrane separation unit, the gas flow is freed of condensable parts.

45. (New) The membrane separation process according to claim 29, wherein the separation of the gas in the membrane separation unit is performed at ambient temperature.

46. (New) The membrane separation process according to claim 29, wherein the pressure of at least one of the inlet pressure of the gas flow and the outlet pressure of the retentate and the outlet pressure of the permeate is changed in a single-stage.

47. (New) A membrane separation process for the enrichment of at least one gas component in a gas flow using a membrane separation device which is part of a membrane separation unit and includes at least one membrane, the gas flow being separated into a retentate, which is discharged on a retentate side of the membrane, and a permeate, which is discharged on a permeate side of the membrane, comprising the steps of delivering the gas flow to the membrane separation unit at ambient pressure, the retentate being discharged from the membrane separation unit at an outlet pressure of that has been lowered below ambient pressure and the pressure on the permeate side having been lowered relative to the outlet pressure of the retentate.

48. (New) The membrane separation process according to claim 47, wherein one of the inlet pressure of the gas flow and the outlet pressure of the retentate is changed by an amount corresponding to the size of a pressure drop occurring on the retentate side of the membrane separation unit.

49. (New) The membrane separation process according to claim 47, wherein at least one of the volume of the permeate stream and the concentration of the component of the gas flow that is enriched is controlled by lowering the pressure level on the permeate side.

50. (New) The membrane separation process according to claim 47, wherein the process is performed in a single-stage.

51. (New) The membrane separation process according to claim 47, wherein a pressure difference between the gas flow and the retentate does not exceed 1 bar.

52. (New) The membrane separation process according to claim 47, wherein a pressure difference between the gas flow and the retentate is controlled depending on the concentration of the component enriched in the permeate.

53. (New) The membrane separation process according to claim 47, wherein the gas component to be enriched is passed through the membrane into the permeate.

54. (New) The membrane separation process according to claim 47, wherein the permeate which is enriched is oxygen, the oxygen being enriched to a concentration of 22 to 45 Vol.%.

55. (New) The membrane separation process according to claim 47, wherein the membrane separation device used comprises at least one of a pocket module, a plate module and a hollow fiber module.

56. (New) The membrane separation process according to claim 47, wherein the gas flow is divided in at least two streams and split through at least one of a plurality of different parallel membrane separation devices and membrane separation units installed in a membrane separation system.

57. (New) The membrane separation process according to claim 47, wherein, before entering the membrane separation unit, the gas flow is cleaned of at least one of particles, oils and fat.

58. (New) The membrane separation process according to claim 47, wherein, before entering the membrane separation unit, the temperature of the gas flow is changed by about 10° C to 25° C.

59. (New) The membrane separation process according to claim 47, wherein, before entering the membrane separation unit, the gas flow is freed of condensable parts.

60. (New) The membrane separation process according to claim 47, wherein the separation of the gas in the membrane separation unit is performed at ambient temperature.

61. (New) The membrane separation process according to claim 47, wherein the pressure of at least one of the inlet pressure of the gas flow and the outlet pressure of the retentate and the outlet pressure of the permeate is changed in a single-stage.

62. (New) A membrane separation system for the enrichment of at least one gas component in a gas flow, comprising:

a membrane separation unit having at least one membrane separation device with at least one membrane for enriching a component of a gas flow fed to the membrane separation unit by separating the gas flow into a retentate, which is discharged on a retentate side of the membrane, and a permeate, which is discharged on a permeate side of the membrane, and

a vacuum compressor for lowering the pressure level on the permeate side of the membrane.

63. (New) The membrane separation system according to claim 62, wherein at least one pressure compressor is provided for increasing the inlet pressure of the gas flow upstream of the membrane separation unit.

64. (New) The membrane separation system according to claim 62, wherein at least one heat exchanger is provided for changing the temperature of the gas flow upstream of membrane separation unit.

65. (New) The membrane separation system according to claim 62, wherein the at least one membrane separation device comprises at least one of a pocket module, a plate module and a hollow fiber module.

66. (New) The membrane separation system according to claim 62, further comprising a filter for removing at least one of particles, oils and fat from the gas flow upstream of the membrane separation unit.

67. (New) The membrane separation system according to claim 62, wherein the membrane separation unit, the vacuum compressor, and the at least one pressure compressor are comprised in a mobile unit having transportable cases.

68. (New) The membrane separation system according to claim 62, wherein said system further comprises a plurality of different membrane separation units, each of which has at least one membrane separation device with at least one membrane for enriching a component of a gas flow fed to the membrane separation unit by separating the gas flow into a retentate, which is discharged on a retentate side of the membrane, and a permeate, which is discharged on a permeate side of the membrane, and a vacuum compressor for lowering the pressure level on the permeate side of the membrane.